the Afar Triangle section is the only source referring to key australopithecine sites such as Maka and Aramis. The several pages on *Homo habilis* fail to mention that every known specimen is later than the first appearance of what the encyclopedia refers to as *Homo erectus*. The Modern Human Origins entry is excellent and even-handed, but there is no reference article for *Homo sapiens*. We do appreciate the absence of articles on the so-called species into which *Homo sapiens* has been subdivided during the recent spree of over-taxonomizing: *Homo antecessor, daliensis, heidelbergensis, neanderthalensis, rhodesiensis,* etc.

This same unevenness extends to the treatment of the field as a part of wider social history. Although many entries provide far more than thumbnail sketches and do address the development of intellectual traditions, others are excessively terse, providing little more than the sparest biographical information. Moreover, some of the more interesting historic details which might only appear in a historic encyclopedia seem missing. These range from the harmless—such as the circumstances by which Electrolux stock was used to found the Viking Fund—to the not-so-harmless, as are the significant omissions from the treatment of Ernst Haeckel. His assertion that the human races are species with different degrees of evolutionary development was not "naïve and speculative," as the Haeckel article states, but an uninformed and exceedingly dangerous formulation of human evolution, one whose links to the American eugenics movement and to National Socialism go unmentioned. One would never gather from this article the influence of Haeckel's social philosophy on science, nor the seminal contribution of Haeckelian physical anthropology to National Socialist ideology. And only at its end does this entry refer us to the separate sections on Race and on Rassenkunde, which are well developed and written. Without looking very carefully, it is too easy to miss the features that give the encyclopedia its broader value in illuminating the importance of sociopolitical issues to physical anthropology as a whole, and vice versa.

Perhaps it is too easy to be critical of so extensive (and expensive) a work as this, and we must re-emphasize Frank Spencer and his contributors's prodigious achievement in conceiving and producing it. It is far more comprehensive than the *Cambridge Encyclopedia of Human Evolution* (Jones et al., 1992), and mostly avoids the latter's obvious agendas and biases. This work is an important contribution to the literature and will be very valuable to anthropologists. But perhaps it really requires a committee of scholars to design a historic encyclopedia that fulfills its broadest potential. Perhaps it remains beyond the scope of any single person to design a set of entries fully incorporating the complexity, depth, and social impact of physical anthropology. A camel, the old joke goes, is a horse designed by a committee. But camels have adapted quite well throughout their history, and perhaps there is more to committee design than meets the eye.

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METAPHYSICS AND THE ORIGIN OF SPECIES. By Michael T. Ghiselin. Albany: State University of New York Press. 1997. 377 pp. ISBN 0-7914-3468-0. $24.95 (paper).

"Of definitions of species," lamented Pierre Trémaux as long ago as 1865, "there are as many as there are naturalists." Despite the population explosion among naturalists and

their successors since then, Trémaux's remark has lost little of its force. The species remains the basic unit of systematic—perhaps biological—discourse, yet remains frustratingly elusive in concept, and resistant to characterization in terms that even come close to satisfying all concerned. Nonetheless, some significant advances have been made in recent years in refining the concept of the species; and despite the opposition that it attracted subsequent to its initial proposal in 1966, none of these has been more consequential than Michael Ghiselin's notion that species, far from being classes, are in fact individuals. As explicit or implied classes under the various versions of the Synthetic Theory of evolution, species had been widely relegated to ephemeral, hence epiphenomenal, status. As individuals, however, they were freed to have births (at speciation), histories (of stasis or otherwise), and deaths (by extinction). Which, of course, ideally suited them as actors in the new role they were shortly to be called upon to play under the about-to-be-formulated notion of punctuated equilibria.

Ghiselin first pursued the idea of species as individuals at book length in *The Triumph of the Darwinian Method* (1969). Two decades down the line, his latest book, *Metaphysics and the Origin of Species*, still betrays some signs of insecurity in its perhaps excessively vehement insistence on the importance and originality of the species-as-individuals idea; but it rapidly goes well beyond this limited arena to articulate a general view of the systematic sciences and how they should be approached. As such, it should be compulsory reading for every scientist whose research is touched by systematics, and for every student who aspires to the field. Not that every reader will agree with all, or even most, of what is on offer here; indeed, everyone will find something to hate. I, for example, was particularly annoyed by Ghiselin's declaration, in the course of (correctly) pointing out how higher "taxa of the same rank have nothing scientifically in common," that in lumping the hominid fossil record to an impossible degree, Ernst Mayr did "not [go] far enough" (p. 270): a point he could only make by abandoning his commitment to the individuality of species in the interests of deploring an arguable "tendency to inflate the taxonomic rank of groups that are deemed particularly interesting." Your bête noir may be different; but you'll find plenty to choose from.

Of course, your annoyance will not distress Ghiselin in the slightest. He is (subtly) out to provoke you, but be warned that you react at your own risk. The book is not beautifully written by literary standards, but Ghiselin's prose is lively, and there is indeed a certain beauty in the way in which he deftly skewers not just his opponents, but the unapproved of all kinds, with throwaway lines. Certain philosopher critics, for example, are excoriated for assuming that Ghiselin is "even less enterprising and innovative than they are themselves" (p. 13); Philip Kitcher "treats knowledge itself as if it were a class" (p. 120); and Willi Hennig is said to have invented "an easy way to do long division using Roman numerals" (p. 189).

As I have intimated, this volume covers a lot of ground in its pursuit of a highly individualistic vision of systematics. Having shifted metaphysics (which he unexceptionably defines as a preoccupation with the "what," 'how," and "why" of reality) from philosophy to science, albeit with little perceptible effect since the two intergrade here, Ghiselin engages in a protracted discussion of terms, including a disquisition on definitions of "definition." Next we are treated to a long and interesting consideration of what individuals, classes, and other entities are, as a prelude to an even lengthier disquisition on species and hierarchies. In this latter discussion, Ghiselin embraces the biological species concept even as he veers dangerously close to characterizing species as economic entities; but the consideration (and rebuttal) of alternative species concepts that follows is a tour de force. The discussion then moves to wider issues of evolutionary theory and systematics, and concludes with a more practical consideration of the role of history in determining where evolutionary theory is today. Although the book is a sufficiently seamless whole to make it rather unfair to single out any particular segment, for my money it is these last pages that are the most valuable of all, elegantly lamenting

as they do the malign influence in phylogenetics of "traditions masquerading as facts" (p. 295). What could anyone add to this, except that it is nowhere truer than of of human phylogenetics?

This then, is, an idiosyncratic book—but in the best sense of the adjective. Ghiselin has taken a number of core evolutionary concepts such as species, classification, and homology, has held them up to the light, and has examined them from more angles than most of us have dreamed of: certainly more than can be done justice to—or argued about—in a short review. You'll have to read this one for yourself.

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AMERICAN BEGINNINGS. THE PREHISTORY AND PALAEOECOLOGY OF BERINGIA. Edited by Frederick Hadleigh West. Chicago: The University of Chicago Press. 1996. xxi + 576 pp. $75.00 (cloth).

Although it may seem unusual to review in this journal a book dealing primarily with cultural rather than biological evidence for the peopling of the Americas, I believe it needs to be done. Regrettably, a proliferation of synchronic biological studies on this topic seems uninformed by a significant body of work, direct and diachronic, on Arctic colonization from Siberia and Alaska. Although available to the scholar willing to track it down, admittedly this trove has been published in many somewhat obscure English and Russian journals. However, the retrieval problem has been greatly reduced by Frederick H. West's marshalling of a large collection of new or updated contributions by more than 60 of the leaders in Beringian or closely related research.

This collection has one major lesson for synchronic genetic studies: There is very little archeological evidence for human presence in far northeastern Siberia, that is, eastern Yakutia, Chukotka, and Kamchatka, much before 15,000 years ago, and so far in Alaska, none predates 12,000 years (Hoffecker, pp. 150–151). Any indirect and synchronic genetic claim made for human presence in the Americas before 12,000 years ago must shoulder the burden of demonstrating that all the Beringian specialists contributing to this volume are wrong. The grand master of Beringian studies, David M. Hopkins, says herein (xix): "To me, it now seems crystal clear than human prehistory in Beringia began not 20,000 [as he formerly believed] but closer to 12,000 years ago . . ."

Moreover, no reasonable case has been made for the initial late Pleistocene colonization of the Americas from any route other than Beringia—dry or flooded. While Proto-Sundadont colonists from Southeast Asia undoubtedly reached Sahulland by some form of watercraft at least 50,000 years ago, the inter-island passages between the mainland and New Guinea are trivial compared to any trans-oceanic route from the Old World to the New. Beringia was the only way to reach the Americas, be it on foot or in watercraft along the southern coast of the late Pleistocene land bridge. Not only is the geography compelling in this argument, so are natural history and paleoenvironmental considerations, along with the prehistoric manufacturing techniques and styles of most of the tool assemblages excavated in far/northeastern Siberia and Alaska. And if these two lines of evidence are not enough to determine origins and dates, there are many biological indicators of relatively recent origins including the obvious omission, trumpeted long ago by Hrdlička, of human skeletal evidence other than strictly anatomically modern, which might be expected had humans entered the New World more than 30,000 years ago as a number of synchronic biological studies claim.

American Beginnings contains three main sections: 1) The paleoenvironment, reconstructed in both geological and biotic chapters containing a dozen separate contribu-